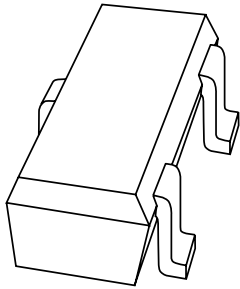


# DATA SHEET



## **1PS184** High-speed double diode

Product data sheet  
Supersedes data of April 1996

1996 Sep 03

## High-speed double diode

## 1PS184

## FEATURES

- Small plastic SMD package
- High switching speed: max. 4 ns
- Continuous reverse voltage: max. 80 V
- Repetitive peak reverse voltage: max. 85 V
- Repetitive peak forward current: max. 500 mA.

## APPLICATIONS

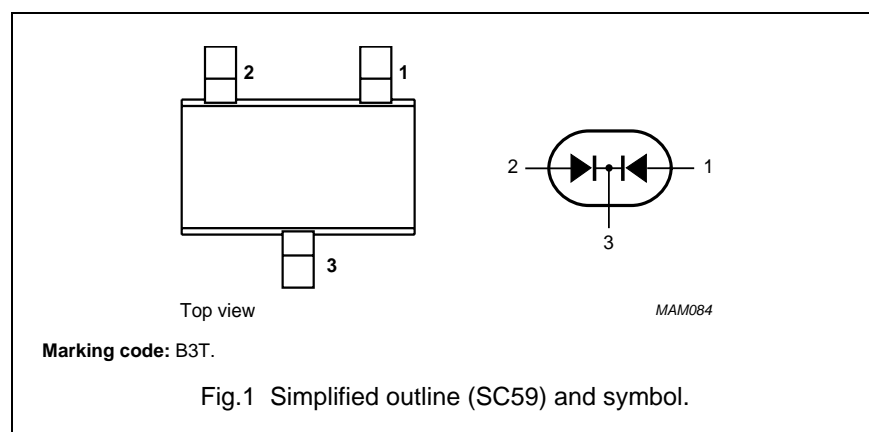
- High-speed switching in e.g. surface mounted circuits.

## DESCRIPTION

The 1PS184 consists of two high-speed switching diodes with common cathodes, fabricated in planar technology, and encapsulated in the small plastic SMD SC59 package.

## PINNING

| PIN | DESCRIPTION    |
|-----|----------------|
| 1   | anode (a1)     |
| 2   | anode (a2)     |
| 3   | common cathode |



## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL           | PARAMETER                           | CONDITIONS                                       | MIN. | MAX. | UNIT |
|------------------|-------------------------------------|--|------|------|------|
| <b>Per diode</b> |                                     |  |      |      |      |
| $V_{RRM}$        | repetitive peak reverse voltage     |  | –    | 85   | V    |
| $V_R$            | continuous reverse voltage          |  | –    | 80   | V    |
| $I_F$            | continuous forward current          | single diode loaded; see Fig.2; note 1           | –    | 215  | mA   |
|                  |                                     | double diode loaded; see Fig.2; note 1           | –    | 125  | mA   |
| $I_{FRM}$        | repetitive peak forward current     |  | –    | 500  | mA   |
| $I_{FSM}$        | non-repetitive peak forward current | square wave; $T_j = 25\text{ °C}$ prior to surge |      |      |      |
|                  |                                     | $t = 1\text{ }\mu\text{s}$                       | –    | 4    | A    |
|                  |                                     | $t = 1\text{ s}$                                 | –    | 0.5  | A    |
| $P_{tot}$        | total power dissipation             | $T_{amb} = 25\text{ °C}$ ; note 1                | –    | 250  | mW   |
| $T_{stg}$        | storage temperature                 |  | –65  | +150 | °C   |
| $T_j$            | junction temperature                |  | –    | 150  | °C   |

## Note

1. Device mounted on an FR4 printed-circuit board.

## High-speed double diode

1PS184

**ELECTRICAL CHARACTERISTICS** $T_j = 25\text{ }^{\circ}\text{C}$ ; unless otherwise specified.

| SYMBOL           | PARAMETER                | CONDITIONS  | TYP. | MAX. | UNIT          |
|------------------|--------------------------|---|------|------|---------------|
| <b>Per diode</b> |                          |   |      |      |               |
| $V_F$            | forward voltage          | see Fig.3   |      |      |               |
|                  |                          | $I_F = 1\text{ mA}$   | 610  | –    | mV            |
|                  |                          | $I_F = 10\text{ mA}$  | 740  | –    | mV            |
|                  |                          | $I_F = 50\text{ mA}$  | –    | 1.0  | V             |
|                  |                          | $I_F = 100\text{ mA}$   | –    | 1.2  | V             |
| $I_R$            | reverse current          | see Fig.4   |      |      |               |
|                  |                          | $V_R = 25\text{ V}$   | –    | 30   | nA            |
|                  |                          | $V_R = 80\text{ V}$   | –    | 0.5  | $\mu\text{A}$ |
|                  |                          | $V_R = 25\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$  | –    | 30   | $\mu\text{A}$ |
|                  |                          | $V_R = 80\text{ V}; T_j = 150\text{ }^{\circ}\text{C}$  | –    | 100  | $\mu\text{A}$ |
| $C_d$            | diode capacitance        | $f = 1\text{ MHz}; V_R = 0$ ; see Fig.5   | –    | 1.5  | pF            |
| $t_{rr}$         | reverse recovery time    | when switched from $I_F = 10\text{ mA}$ to $I_R = 10\text{ mA}$ ; $R_L = 100\text{ }\Omega$ ; measured at $I_R = 1\text{ mA}$ ; see Fig.6 | –    | 4    | ns            |
| $V_{fr}$         | forward recovery voltage | when switched from $I_F = 10\text{ mA}$ ; $t_r = 20\text{ ns}$ ; see Fig.7  | –    | 1.75 | V             |

**THERMAL CHARACTERISTICS**

| SYMBOL         | PARAMETER                                     | CONDITIONS | VALUE | UNIT |
|----------------|---|------------|-------|------|
| $R_{th\ j-tp}$ | thermal resistance from junction to tie-point |            | 250   | K/W  |
| $R_{th\ j-a}$  | thermal resistance from junction to ambient   | note 1     | 500   | K/W  |

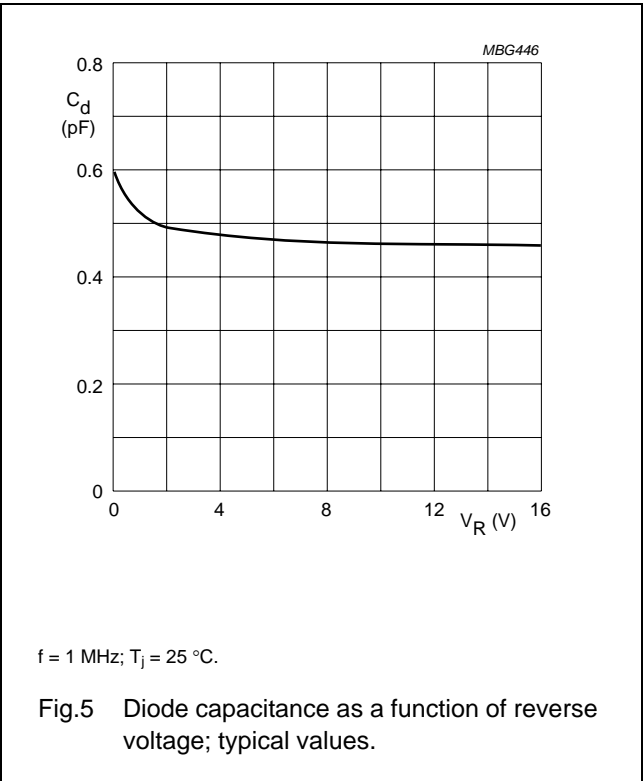
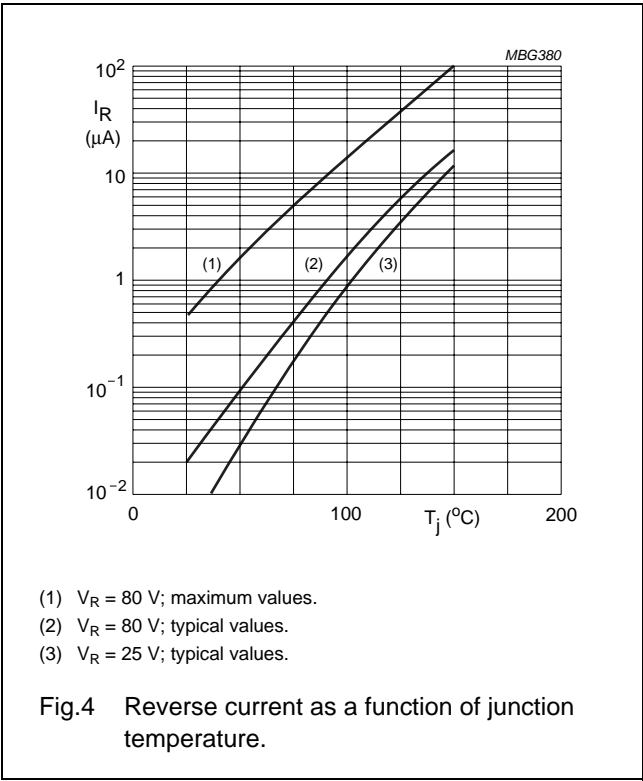
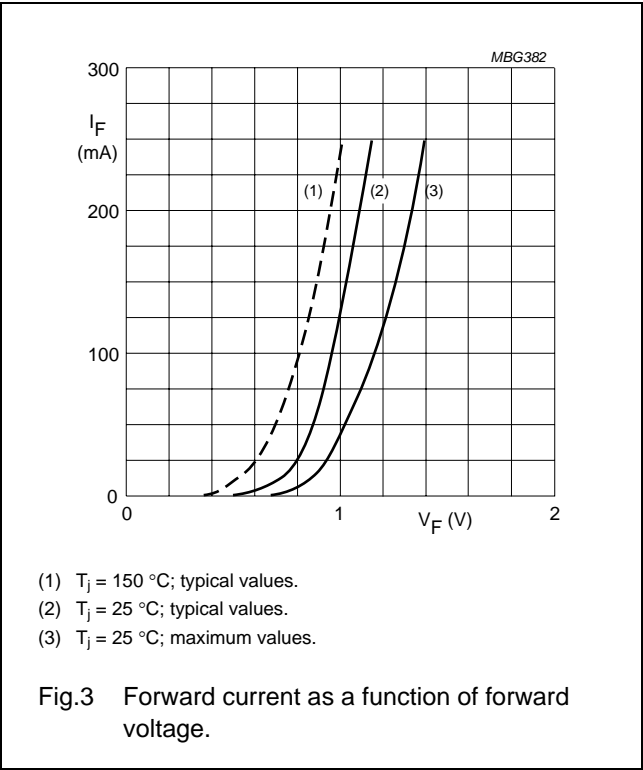
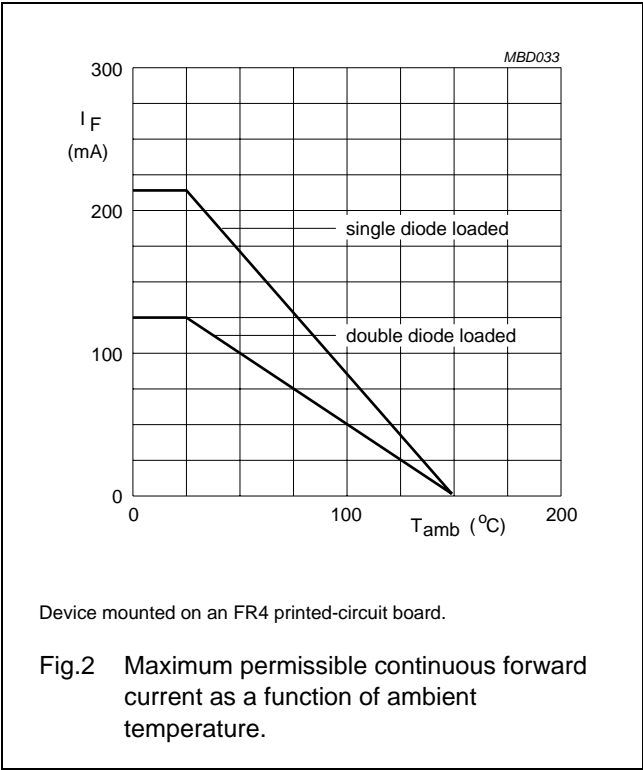
**Note**

1. Device mounted on an FR4 printed-circuit board.

High-speed double diode

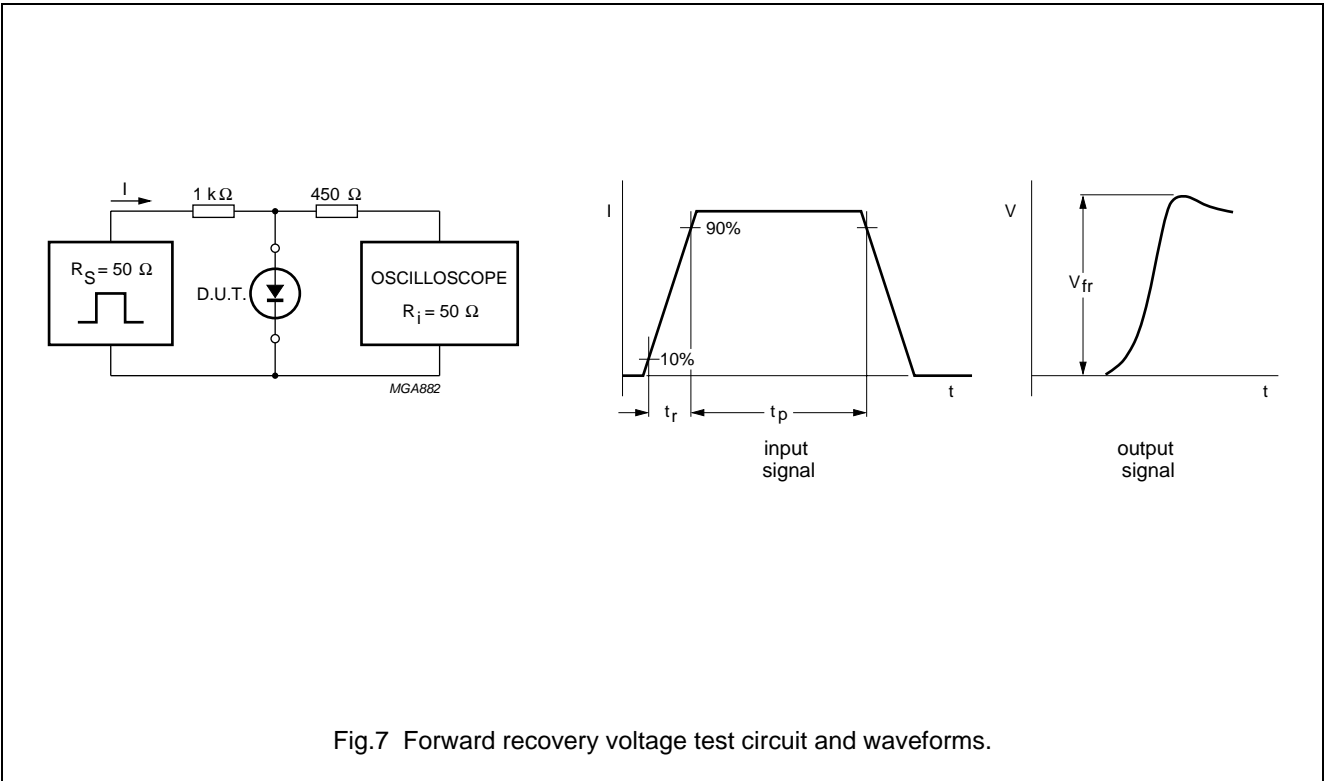
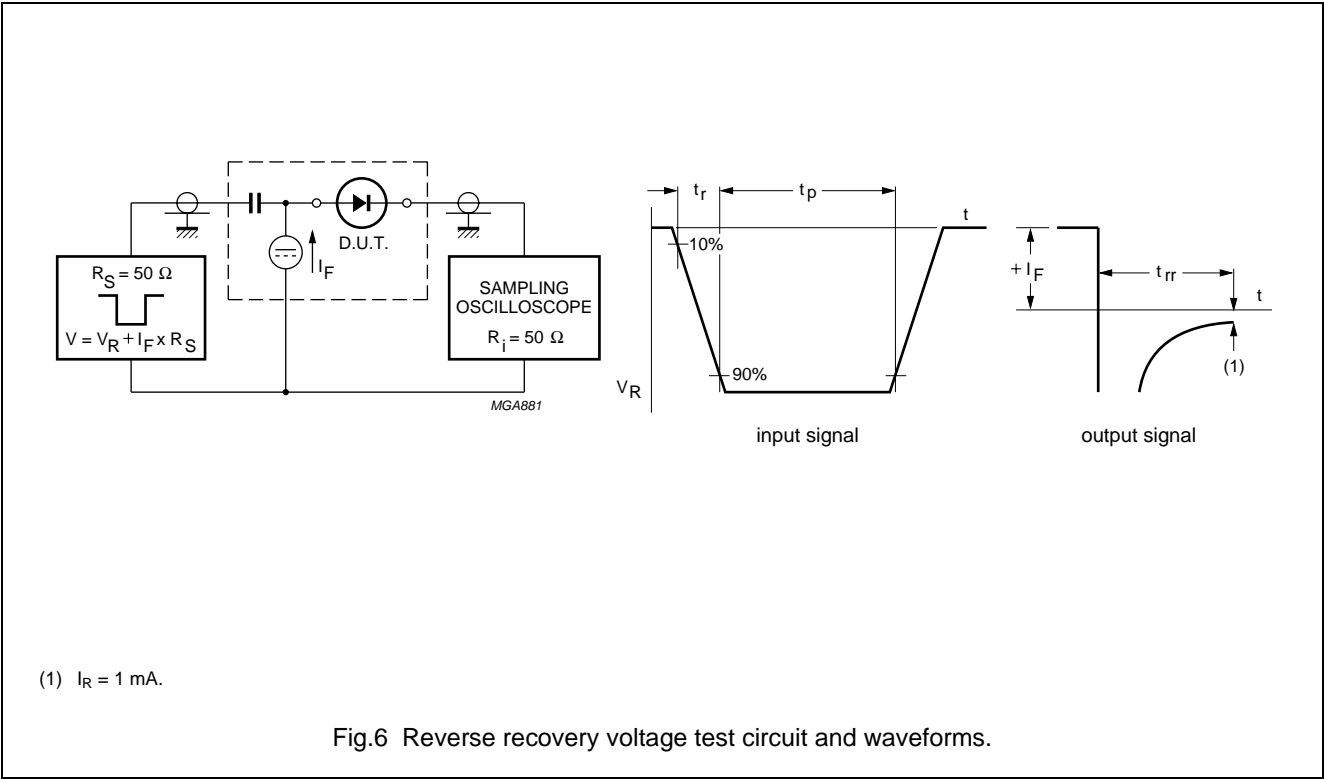
1PS184

GRAPHICAL DATA



High-speed double diode

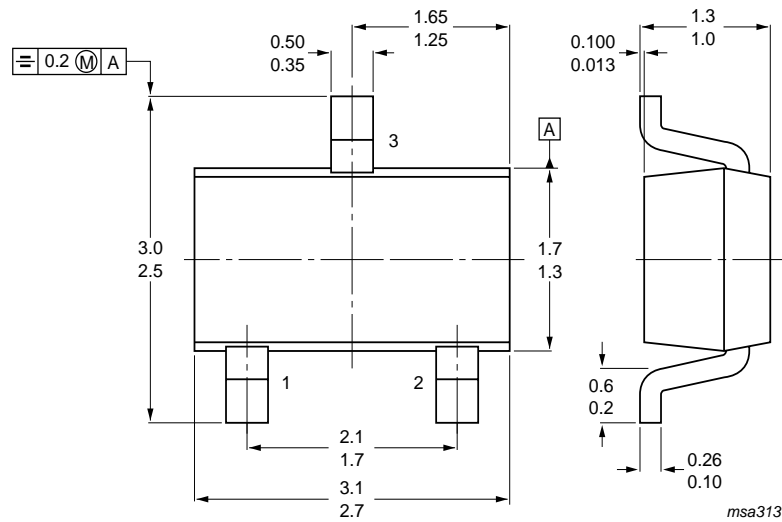
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High-speed double diode

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PACKAGE OUTLINE



Dimensions in mm.

Fig.8 SC59.

## High-speed double diode

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## DATA SHEET STATUS

| DOCUMENT STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)</sup> | DEFINITION  |
|--------------------------------|-------------------------------|---|
| Objective data sheet           | Development                   | This document contains data from the objective specification for product development. |
| Preliminary data sheet         | Qualification                 | This document contains data from the preliminary specification.                       |
| Product data sheet             | Production                    | This document contains the product specification.                                     |

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